

PYTINICARPA (ASTERACEAE: ASTEREA), A NEW GENUS FROM NEW CALEDONIA

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ABSTRACT

Two New Caledonian species of white-rayed daisies with solitary heads on scapose stems and leaves in a basal rosette are here separated as the new genus *Pytinicarpa*, with the new combinations *P. neocaledonica* and *P. sarasinii*. They have previously been treated as *Brachycome*, but they differ from that genus particularly in their parallel-veined leaves, disc flowers with sterile ovaries, and narrowly oblong, 6-8-nerved achenes with a short neck. *Pytinicarpa* is hypothesized to be most closely related to *Lagenifera* and related genera but differs from them in its parallel-veined leaves, sharply conical receptacle, 1-seriate pistillate flowers with long ligules, and 6-8 nerved achenes with a short, eglandular neck.

KEY WORDS: *Pytinicarpa*, *Brachycome*, *Lagenifera*, Asteraceae, Astereae, New Caledonia

In a survey of Astereae species, it has become apparent that two species of New Caledonia are taxonomically misplaced: *Brachycome neocaledonica* Guill. and *Brachycome sarasinii* Daniker. Davis did not include extra-Australian species in her monograph (1948) of *Brachycome* Cass.; the taxonomic status of these two species apparently has not been considered since Guillamin's treatment of the New Caledonian Asteraceae (1948). Their phyletic affinity is somewhat equivocal, but they appear to be as close or closer to *Lagenifera* Cass. as to *Brachycome*, as discussed below. They are not accommodated in either of these genera or in any of their relatives, and the two New Caledonian species are formally recognized here as a new genus.

Pytinicarpa Nesom, *gen. nov.* Type species: *Pytinicarpa* (*Brachycome*) *neocaledonica* (Guill.) Nesom.

Herbae perennes eglandulosae foliis rosulatis et capitulis solitariis in caulibus scaposis; folia angusta 3-nervata; phyllaria oblonga vel oblongi-obovata tenuia glabra; receptaculis acute conicis; flosculi disci velut staminati fungentes, ovariis sterilibus ac corollis brevibus; flosculi radii 1-seriati fertiles ligulis circinnatis; achenia glabra epapposa eglandulosa complanata anguste oblonga basi attenuata et brevicircularia ad apicem, plerumque 6-8 nervata. Differt a *Brachycome* Cass. foliis parallelinerviis, ovariis disci sterilibus, et acheniis nervis 6-8 longitudinalibus. Differt a *Lagenifera* Cass. foliis parallelinerviis, receptaculis acute conicis, flosculis radii 1-seriatis ligulis longis, et acheniis 6-8 nervatis.

Perennial, eglandular herbs, with leaves in a basal rosette and solitary heads on scapose stems with a few scattered, filiform bracts, the stems glabrous, 1-ca. 6 from the base, arising from a short, fibrous-rooted rhizome. Leaves narrowly oblanceolate to linear, with 3 parallel veins, the lateral pair sometimes obscure, sparsely villous with thin-based, minutely filiform, usually much-twisted, white hairs up to 3 mm long. Heads solitary, campanulate, 6-10 mm wide; phyllaries in 2-4 series of nearly equal length, inner 2.5-5.0 mm long, the outermost series ca. 1/3-1/4 as long, thin with stomates conspicuously visible, glabrous, flat, oblong, broadly rounded at the apex, with scarious, lacerate to short-ciliate margins and a thin, orange midvein; receptacles sharply conical. Disc flowers functionally staminate, with sterile ovaries; disc corollas 2-4 mm long, orange-veined, the tube 1 mm long, slightly but abruptly expanding into a non-indurated limb, tube sparsely but conspicuously invested with Type C trichomes, the lobes 5, erect, deltate; style branches narrowly triangular with sharply acute apices, 1.0-1.5 mm long, spreading-hairy from tip to base, without stigmatic lines; anther thecae basally truncate, with oblong-rounded apical appendages ca. 1 mm long, filaments adnate to the corolla at the tube-throat junction. Pistillate flowers 1-seriate, fertile, with prominent, white, coiling 4-6-veined ligules, the tube distinctly hairy near the base with Type A trichomes (see Nesom 1976 for trichome terminology). Achenes epappose, flattened, narrowly oblong with a narrowed base and apex and with an eglandular, barely formed neck, usually with 2 marginal nerves and (1-)2(-3) additional nerves on each face, the total number of nerves not greater than 8, the lateral and facial nerves similar in thickness, all nerves vascularized, the faces glabrous, eglandular, tan or becoming distinctly purplish, the surfaces with a minutely "frothy" texture at maturity because of distinctly inflated quadrate cells.

The generic name is derived from "pytine" (Greek, referring to a flask covered with plaited work) and "carpos" (Greek, fruit), alluding to the shape of the achenes and their facial ribbing as well as the putative relationship of *Pytinicarpa* with *Lagenifera* ("lagena," flagon and "fero," to carry, Latin).

KEY TO THE SPECIES

1. Leaves nearly linear, 2-4 mm wide, usually entire, glabrous or nearly so; disc corollas 2.2-2.5 mm long. *P. neocaledonica*
1. Leaves oblanceolate, distinctly broadened in the distal half or third, 5-15 mm wide at the broadest point, usually coarsely toothed; often persistently loosely white-sericeous; disc corollas 3.0-4.0 mm long. *P. sarasinii*

Pytinicarpa neocaledonica (Guill.) Nesom, *comb. nov.* (Figure 1). BASIONYM: *Brachycome neocaledonica* Guill., Bull. Soc. Bot. France 84:61. 1937. SYNTYPES: NEW CALEDONIA: Nehoue, *Pancher 94* and *Deplanche 425*; Gatope, 1861-1867, *Viellard 2823*. I have studied 2 sheets of *Viellard 2823* (AA!,GH!), which include a total of 5 plants.

Leaves 8-18 cm long, mostly linear, very slightly tapered near the base, 2-4 mm wide at the widest point, apex acute, margins usually entire, rarely apically mucronulate, sparsely villous with long, white, loose, thin hairs along the margins and veins, quickly glabrescent; scapes 20-35 cm long; heads 4-6 mm wide; phyllaries in 2-3 series, the inner 2.5-3.0 mm long; ray flowers 15-19, 4-6 mm long including the tube 1 mm long, the ligules ca. 0.5 mm wide; disc corollas 2.2-2.5 mm long, the tube only slightly constricted; achenes ca. 3 mm long.

Pytinicarpa sarasinii (Daniker) Nesom, *comb. nov.* (Figure 2). BASIONYM: *Brachycome sarasinii* Daniker, Mitt. Bot. Mus. Univ. Zürich 142:479. 1933. TYPE: NEW CALEDONIA: am oberen Abhang des Mut. Koniambo bei der Mine Boume I, zerstreut im lichten Gebusch an felsigen stellen, 14 Jan 1925, *Daniker 880* (HOLOTYPE: Z).

Leaves 2.5-14.0 cm long, petiolate, oblanceolate, 5-15 mm wide at the widest point, apex acute to obtuse, margins usually with 1-3 pairs of coarse teeth to small mucros on the distal 1/3-1/4, less commonly entire, sparsely villous with long, white, loose, thin hairs along the margins and veins, young leaves often densely white-villous but glabrescent, the hairs more persistent at the leaf base; scapes 14-36 cm long; heads 6-10 mm wide; phyllaries in 3-4 series, the inner 3-5 mm long; ray flowers 26-38, 8-12 mm long including the tube 1 mm long, the ligules 1.5-1.8 mm wide; disc corollas 3.0-4.0 mm long; achenes 2.5-4.0 mm long.

Collections examined: NEW CALEDONIA: top of Mt. Kaala (ca. 15 km SE of Koumac), ca. 1000 m, open soil in rocky, lateritic serpentine area, 9 Dec

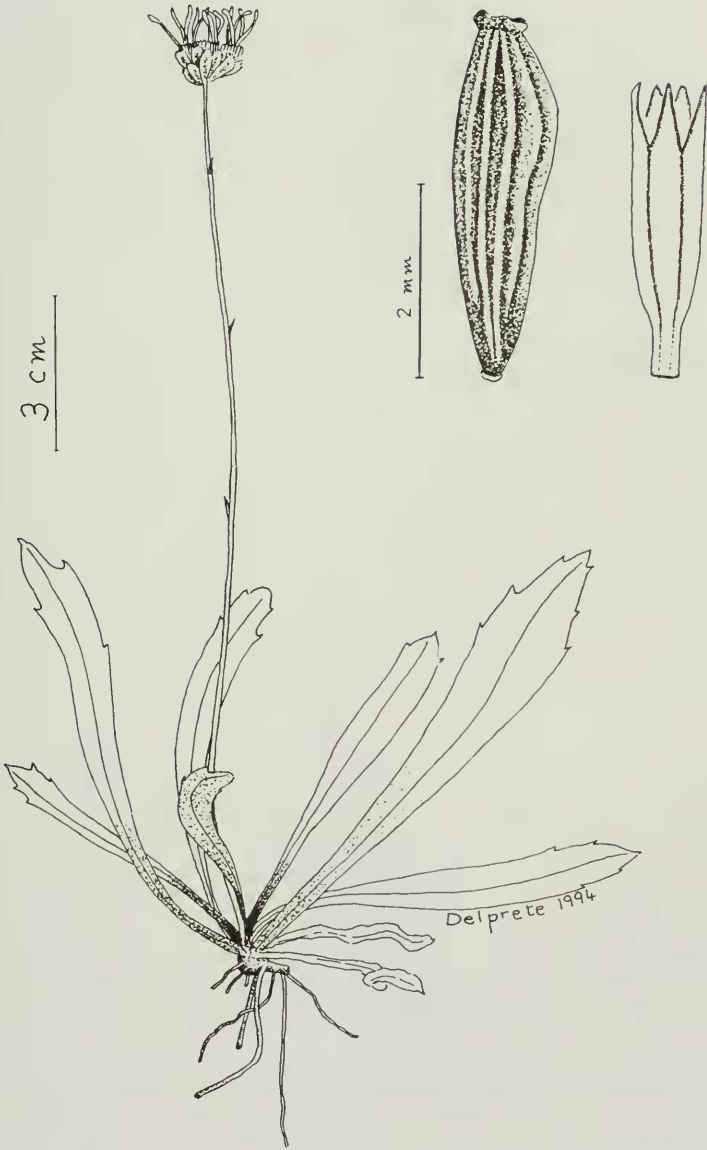


Figure 1. Habit and details of *Pytinicarpa sarasini*.



Figure 2. Habit of *Pytmicarpa neocaledonica*.

1963, *Green 1817* (AA); Mt. Koniambo, S of Voh, scrub on peridotite, 800 m, 11 Oct 1982. *McPherson 4990* (MO).

Also cited by Daniker (1933): NEW CALEDONIA. Serpentinberg Koniambo bei Voh 400 m, 21 Mar [no year], *Heim 50* (Z); am Koniambo Massiv, ca. 200 m, 14 Jul 1911, *Sarasin 86* (Z). The label data, as well as Daniker's comments (1932-33), note that this species occurs on a serpentine substrate.

Daniker (1933) specifically compared his new species to *Brachycome neo-caledonica* Guill., but the latter name does not appear to have been validly published until 1937. Guillamin (1937) apparently was unaware of Daniker's publication, as *Pytinicarpa sarasinii* apparently is the species identified by Guillamin as *Brachycome scapigera* DC.

There is a remarkable resemblance between the two species of *Pytinicarpa* and many of *Brachycome* (e.g., *B. nivalis* F. Muell., *B. cardiocarpa* F. Muell. ex Benth., *B. scapiformis* DC.) in habit (scapose, rosulate) and phyllary morphology (broad, oblong-obovate, evenly herbaceous, pauciseriate), and most *Brachycome* produce conical receptacles, 1-seriate pistillate flowers, short-tubed disc corollas, and epappose achenes. There are no species of *Brachycome*, however, that produce parallel-veined leaves with shiny-textured surfaces, disc flowers with sterile ovaries, or similarly shaped (relatively long) achenes; further, no achenes of *Brachycome* have longitudinally nerved faces or a short neck. *Brachycome* is primarily an Australian genus with a few species in New Zealand (Allan 1961) and New Guinea (Koster 1966). Two closely related Australasian relatives of *Brachycome* (*Calotis* R. Br. and *Ceratogyne* Turcz.) have functionally staminate disc flowers, but they are generally similar to *Brachycome* in leaf and achene morphology.

Most of these same features (scapose and rosulate habit, few and broad phyllaries, epappose achenes, short-tubed corollas) also are characteristic of *Lagenifera* and genera closely related to it (e.g., *Solenogyne* Cass., *Myriactis* Less., *Keysseria* Lauerb.; see Nesom 1994 and in prep. for general comments), which also occur primarily in the Australasian area. The morphological resemblance and geographic coherence of the taxa of this relatively broad group (*Lagenifera* and its relatives and *Brachycome* and its relatives) suggests that they are related between themselves and that the phyletic affinity of *Pytinicarpa* lies with them. This is not surprising, as the strongest relationship of the New Caledonian flora lies with the Queensland area of Australia (Thorne 1969).

Further, the oblong, short-necked achenes of *Pytinicarpa* are markedly similar to those of *Lagenifera* and related genera, and sterile disc ovaries are common in the *Lagenifera* group. All of these genera, however, produce pinnately veined leaves with dull-textured surfaces, flat to merely low-convex receptacles, flat and 2-nerved achenes, and pistillate flowers in several series. While *Pytinicarpa* cannot be congeneric with any of the *Lagenifera* group, its strongest similarity appears to lie in that direction.

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LITERATURE CITED

- Allan, H.H. 1961. *Flora of New Zealand*. Vol. 2. P.D. Hassleberg, Govt. Printer, Wellington, New Zealand.
- Daniker, A.U. 1932-33. Ergebnisse der Reise von Dr. A.U. Daniker nach Neu-Caledonien und den Loyaltats-Inseln. 4. Katalog der Pteridophyta und Embryophyta siphonogama. Mitt. Bot. Mus. Univ. Zürich, Vol. 142.
- Davis, G.L. 1948. Revision of the genus *Brachycome* Cass. I. The Australian species. Proc. Linn. Soc. New South Wales 73:142-241.
- Guillamin, A. 1937. Matériaux pour la flore de la Nouvelle-Caledonie. XLIII. - Revision des Composees. Bull. Soc. Bot. France 84:54-61.
- . 1948. *Flore analytique et synoptique de la Nouvelle-Caledonie: Phanerogames*. Office Recherche Sci. Coloniale, Paris, France.
- Koster, J.T. 1966. The Compositae of New Guinea I. Nova Guinea 24:524-612.
- Nesom, G.L. 1994. Taxonomic dispersal of Australian *Erigeron* (Asteraceae: Astereae). Phytologia 76:143-159.
- Thorne, R.F. 1969. Floristic relationships between New Caledonia and the Solomon Islands. Phil. Transact. Roy. Soc. B 255:595-602.